



MATERIAL SAFETY DATA SHEET

(Approved by U.S. Department of Labor "Essentially Similar" to Form LSB-OOS-4)



JUN 14 1982

CHEMICAL NAME: UCON® REFRIGERANT 12

DPM 157

SYNONYMS: --

CHEMICAL FAMILY: UCON Refrigerants

FORMULA: CCl_2F_2

MOLECULAR WEIGHT: 120.9

TRADE NAME AND SYNONYMS: UCON Refrigerant 12

I. PHYSICAL DATA

BOILING POINT, 760 mm. Hg	-29.8°C. (-21.6°F.)	FREEZING POINT	-157.7°C. (-252°F.)
SPECIFIC GRAVITY ($\text{H}_2\text{O} = 1$)	1.33 at 21°C.	VAPOR PRESSURE AT 20°C.	82.3 psia.
VAPOR DENSITY (air = 1)	4.2	SOLUBILITY IN WATER, % by wt.	<0.01
PER CENT VOLATILES BY VOLUME	100	EVAPORATION RATE (Butyl Acetate = 1), 20°C.	380
APPEARANCE AND ODOR	Gas; characteristic odor.		

II. HAZARDOUS INGREDIENTS

MATERIAL	%	TLV (Units)
Not applicable		

III. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (test method)	None	AUTOIGNITION TEMPERATURE	None		
FLAMMABLE LIMITS IN AIR, % by volume		LOWER	Nonflammable	UPPER	Nonflammable
EXTINGUISHING MEDIA	Not applicable				
SPECIAL FIRE FIGHTING PROCEDURES	None				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None				

EMERGENCY PHONE NUMBERS

Dr. C. U. Dernehl, 212/551-4785; 914/946-0646 (night)
Dr. K. S. Lane, 212/551-4787; 914/666-3656 (night)
C. P. Carpenter, Ph.D., 412/327-1020; 412/241-7896 (night)

Legal responsibility is assumed only for the fact that all studies reported here and all opinions are those of qualified experts.

UNION CARBIDE CORPORATION • CHEMICALS AND PLASTICS • 270 PARK AVENUE, NEW YORK, N.Y. 10017

BOE-C6-0208388

IV. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	1,000 ppm.
EFFECTS OF OVEREXPOSURE	Contact with liquid will freeze tissues. Breathing concentrations in excess of 10 per cent in air will cause dizziness. An asphyxiate.
EMERGENCY AND FIRST AID PROCEDURES	Flush frosted skin with warm water and get medical care. If inhaled in high concentrations, move to fresh air.

V. REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID	None
UNSTABLE --	STABLE ✓		
INCOMPATIBILITY (materials to avoid)		None	
HAZARDOUS DECOMPOSITION PRODUCTS		Thermal decomposition may produce hydrogen chloride, hydrogen fluoride, carbon monoxide, and/or carbon dioxide.	
HAZARDOUS POLYMERIZATION		CONDITIONS TO AVOID	None
May Occur --	Will not Occur ✓		

VI. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED	Allow to evaporate.
WASTE DISPOSAL METHOD	Mix in small proportion with combustible liquid and incinerate.

VII. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type)	Fresh-air mask for high concentrations		
VENTILATION	LOCAL EXHAUST	Preferred	SPECIAL ---
	MECHANICAL (general)	Acceptable	OTHER ---
PROTECTIVE GLOVES	---	EYE PROTECTION	Safety glasses
OTHER PROTECTIVE EQUIPMENT	Eye bath and safety shower		

VIII. SPECIAL PRECAUTIONS

PRECAUTIONARY LABELING	<p style="text-align: center;">UCON® REFRIGERANT 12</p> <p style="text-align: center;">CAUTION! LIQUID AND GAS UNDER PRESSURE. Keep away from heat or open flame. Do not drop or refill. Nonflammable liquified gas.</p> <p style="text-align: center;">FOR INDUSTRY USE ONLY</p>
OTHER HANDLING AND STORAGE CONDITIONS	---